

# Russian River Biological Assessment Flow Proposal

# Where did it come from?

- Grew out of the Section 7 consultation under Endangered Species Act
- Improves conditions for young salmonids in
  - Russian River,
  - Dry Creek, and
  - Estuary

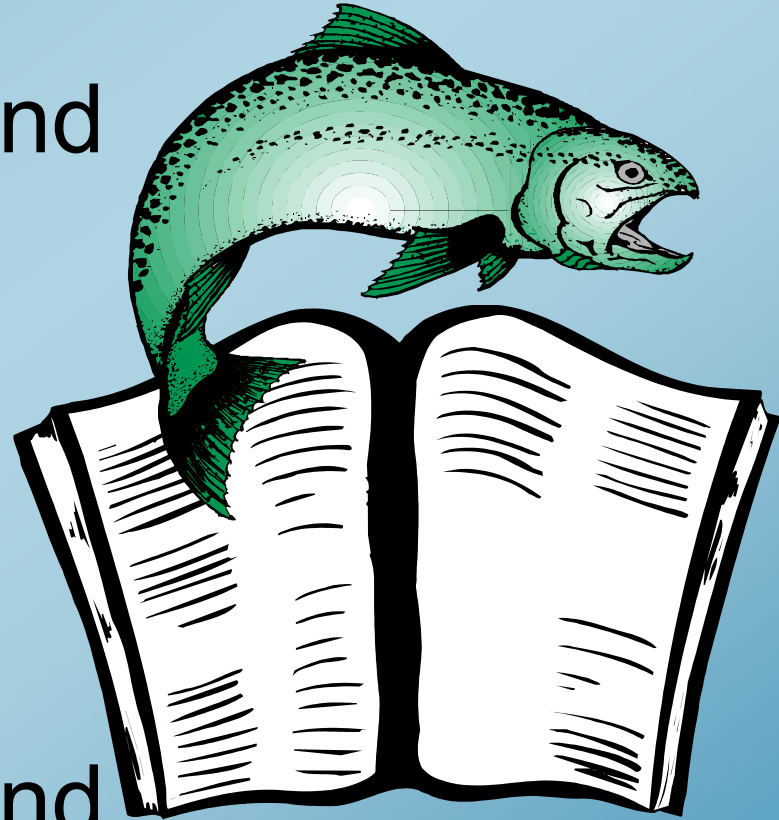


# Section 7 Consultation

- Required under ESA
- Reviews activities of the Corps, SCWA in the Russian River
- Change operations to reduce adverse effects to salmon and steelhead
- Authorizes “take” and sets limits

# Formal Process

- Corps of Engineers and SCWA - Prepare BA
- NOAA Fisheries - Prepares Biological Opinion
- Corps of Engineers and SCWA - conduct CEQA/NEPA review

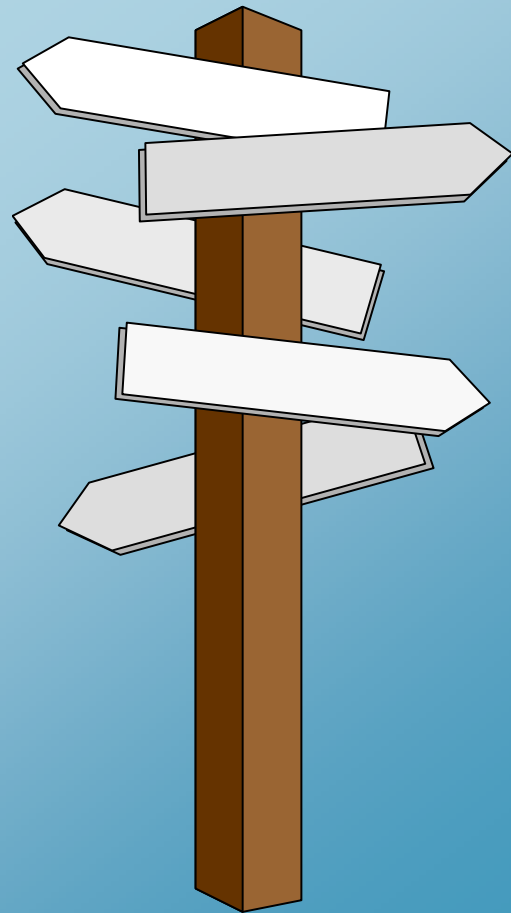


# Actions under Consultation

- Flood control and hydropower
- Water supply and transmission
- Flow and estuary management
- Channel maintenance
- Conservation measures
- Fish production facilities

# Develop Alternative Actions

- Bypass flows at Coyote Dam
- Fish screen upgrade at Mirabel and Wohler diversions
- Coho captive brood stock program
- Flow Proposal
- Inflatable Dam Operation



# Draft BA

- Identifies environmental baseline
- Suggests changes in facilities and operations
- Effects on coho, steelhead and Chinook

# Problems with Existing Flows

Velocities are too high for young steelhead and coho salmon

- Upper Russian River
  - Ukiah to Hopland Reach
  - Hopland to Cloverdale Reach
- Dry Creek



# Dry Creek



**130 cfs**



**40 cfs**

# Problems with Existing Flows

Water Temperatures increase in September in the Upper Russian River

- Run out of cool water in Lake Mendocino

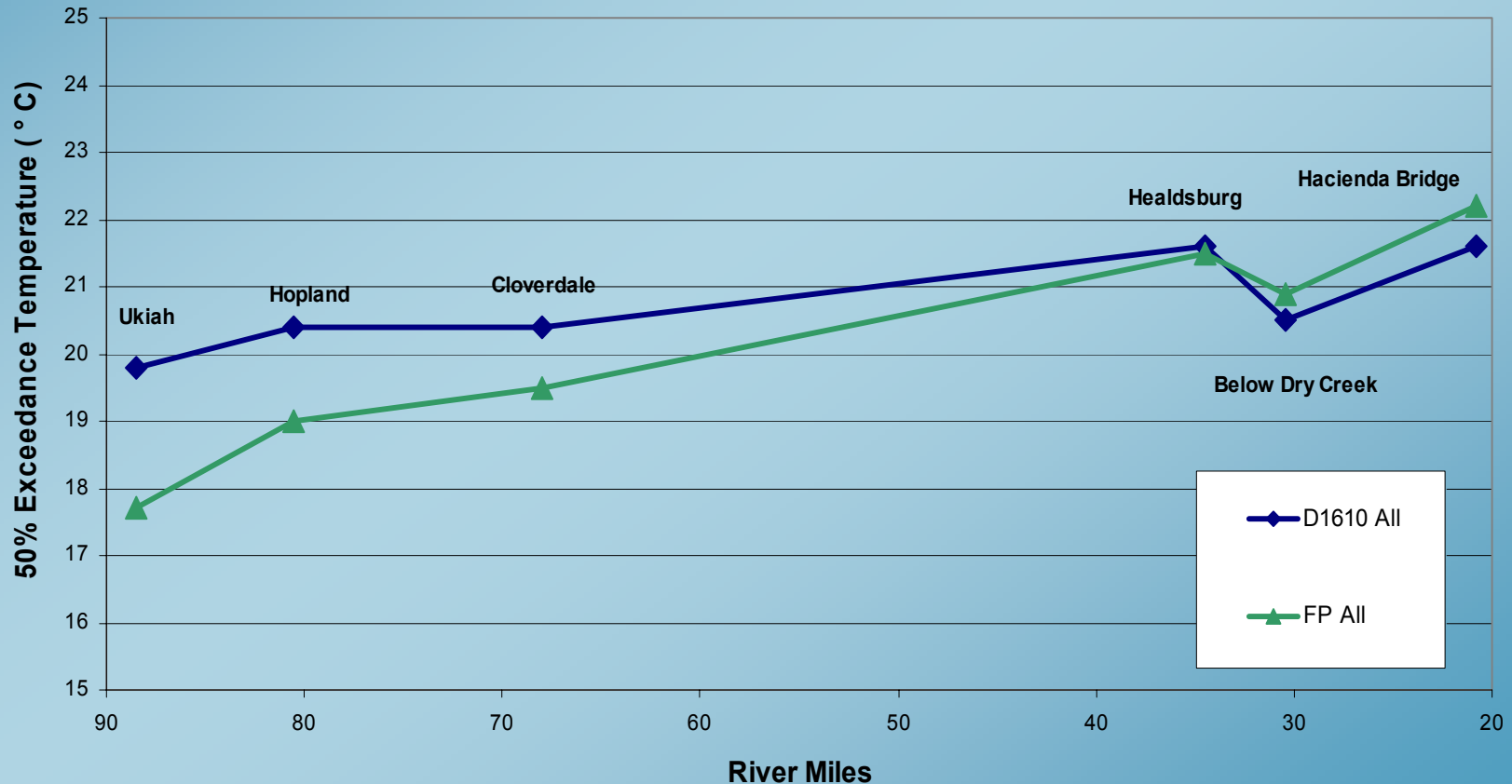
# Problems with Existing Flows

High flows disrupt cool refuge areas

- Tributaries input cooler water temperatures
- Existing flows mix water reducing the effects of cool water inflow from tributaries

# Water Temperatures Upper Russian River

September Median Monthly Temperature for the Russian River  
Current Operations under D1610 and the Flow Proposal



# Problems with Existing Flow

High inflows create the need for artificial breaching of the sand bar

- Allows entry of adult Chinook when river conditions are unsuitable
- Risk of “flushing” young fish out of the estuary prematurely

# Russian River Estuary



**Open**



**Closed**



# Flow Proposal



# What is a Flow Proposal anyway?

- A flow proposal defines minimum flow levels in a stream system to protect beneficial uses.
- These minimum flows are specified as limitations in a water right permit or license.



# Minimum Flow Requirements

- Minimum flows are traditionally specified by:
  - month
  - reach of river
  - water supply condition.

# What are the Lower River minimum flows now?

- From the Dry Creek confluence to the estuary, the minimum flow rates are currently:
  - Normal Year      125 cfs
  - Dry Year          85 cfs
  - Critical Year      35 cfs

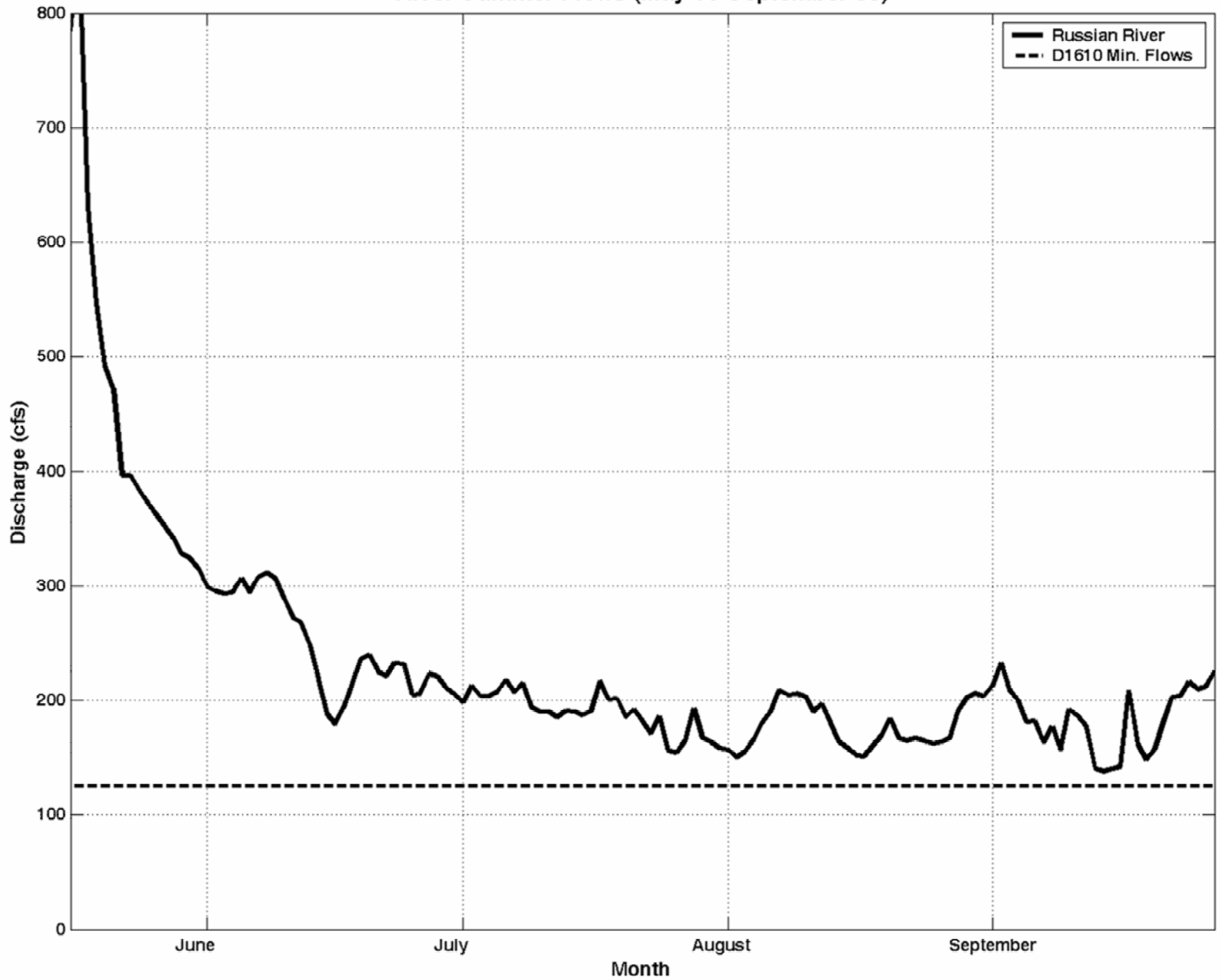
# What are the Lower River flows now?

- Average flows from 1986-present:
  - June 360 cfs
  - July 200 cfs
  - Aug 180 cfs
  - Sept 180 cfs

# Compare actual flows with minimum flows...

- June 235 cfs higher
- July 75 cfs higher
- Aug 55 cfs higher
- Sept 55 cfs higher

River Summer Flows (May 16-September 30)



# Flow Proposal

- The flow proposal was developed to mitigate flow-related impacts to listed species.

# Flow Proposal

- The flow proposal has components designed to address impacts in the areas identified
  - Russian River
  - Dry Creek
  - Estuary

# Flow Proposal – Upper River

- Above Healdsburg, the summer flows will be slightly reduced to create habitat that is more beneficial to the listed species.
- Future releases would be held slightly below current levels.
- The reduction will help conserve the cold water pool in Lake Mendocino and maintain habitat complexity.



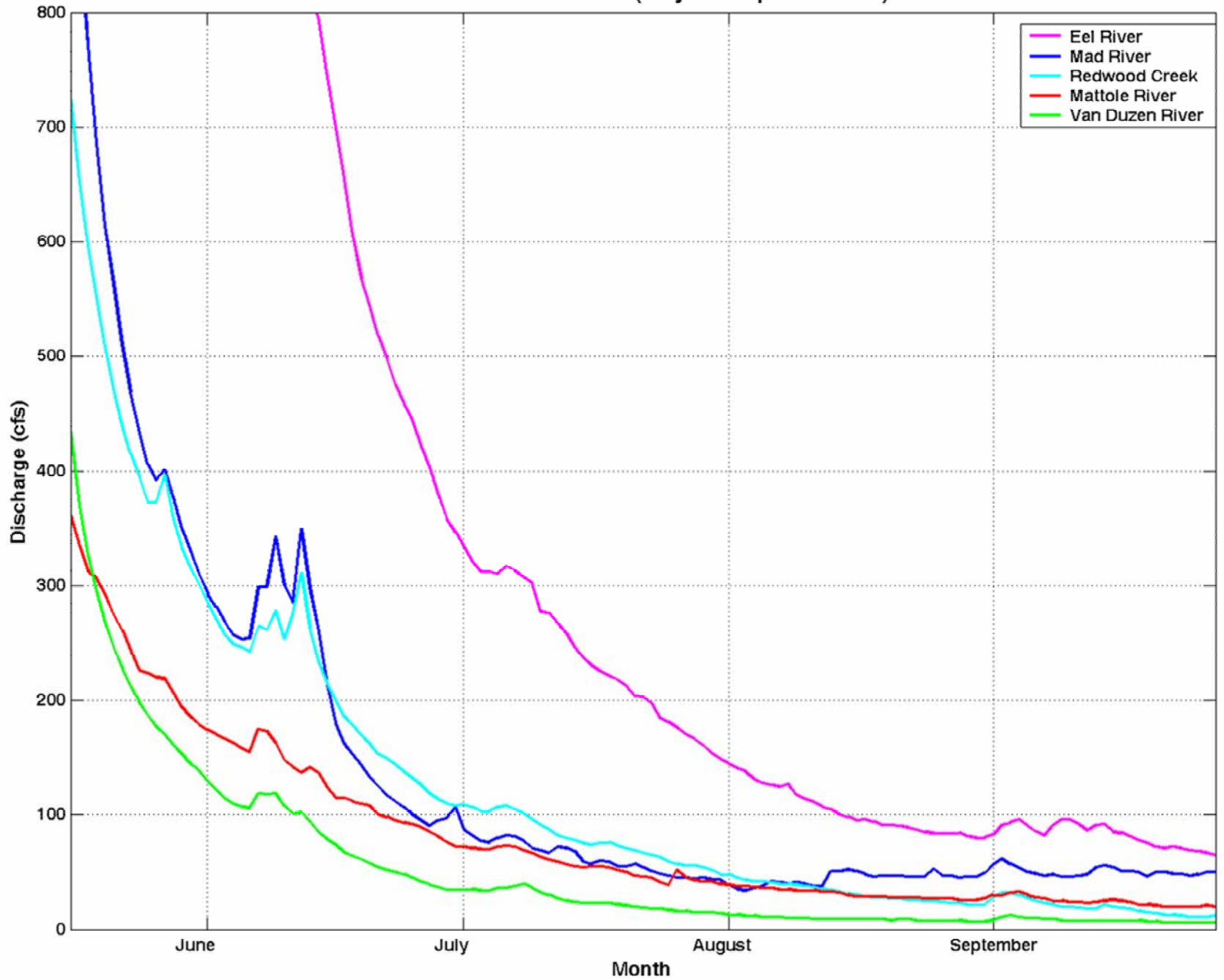
# Flow Proposal - Dry Creek

- Summer flow in Dry Creek would usually be held to between 50 and 90 cfs. Currently summer releases can approach 140 cfs.

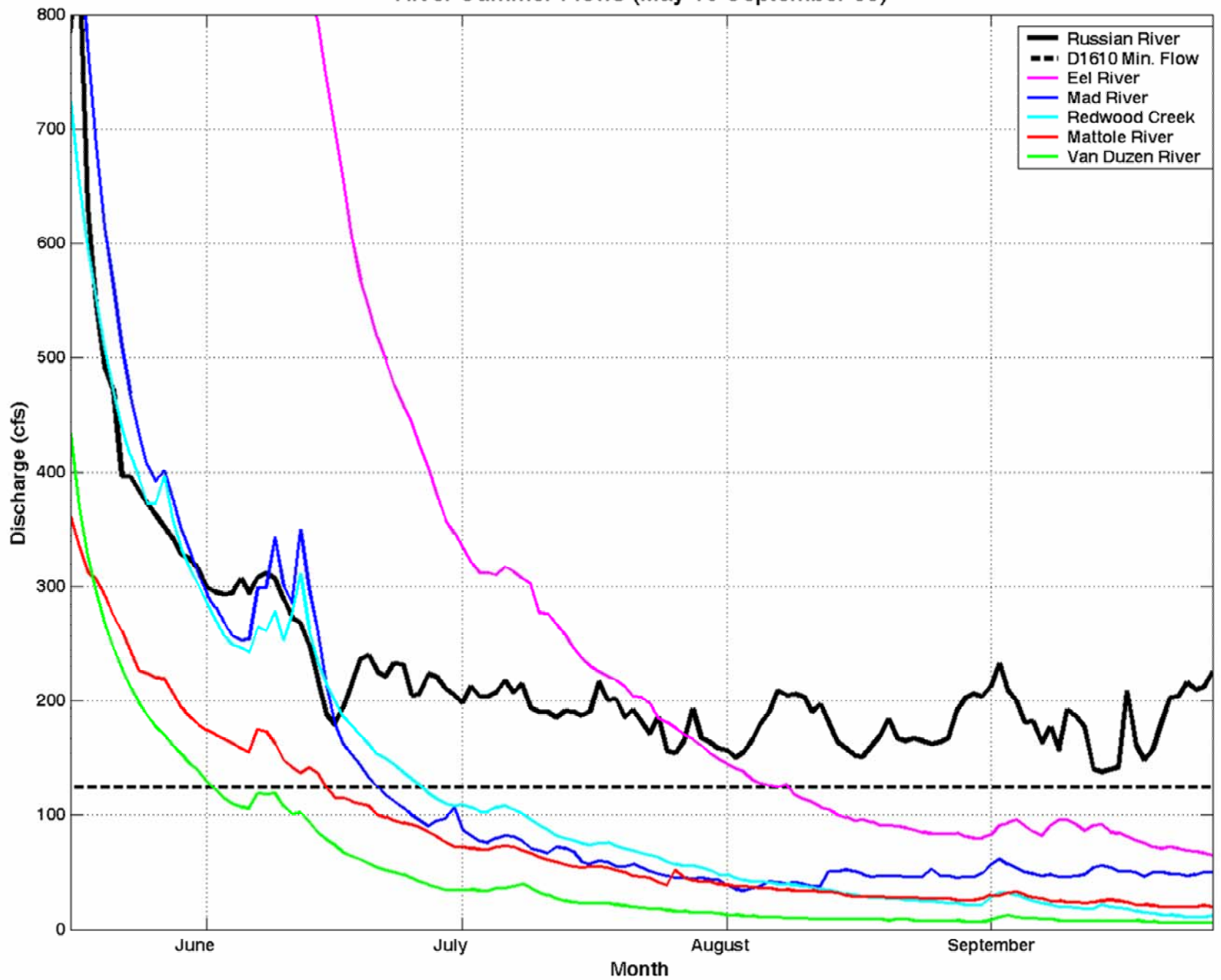
# Flow Proposal – Lower River

- Minimum flow requirements would change daily to more closely match natural hydrologic patterns.
- An absolute minimum of 35 cfs would ensure habitat continuity under all hydrologic circumstances.

River Summer Flows (May 16-September 30)



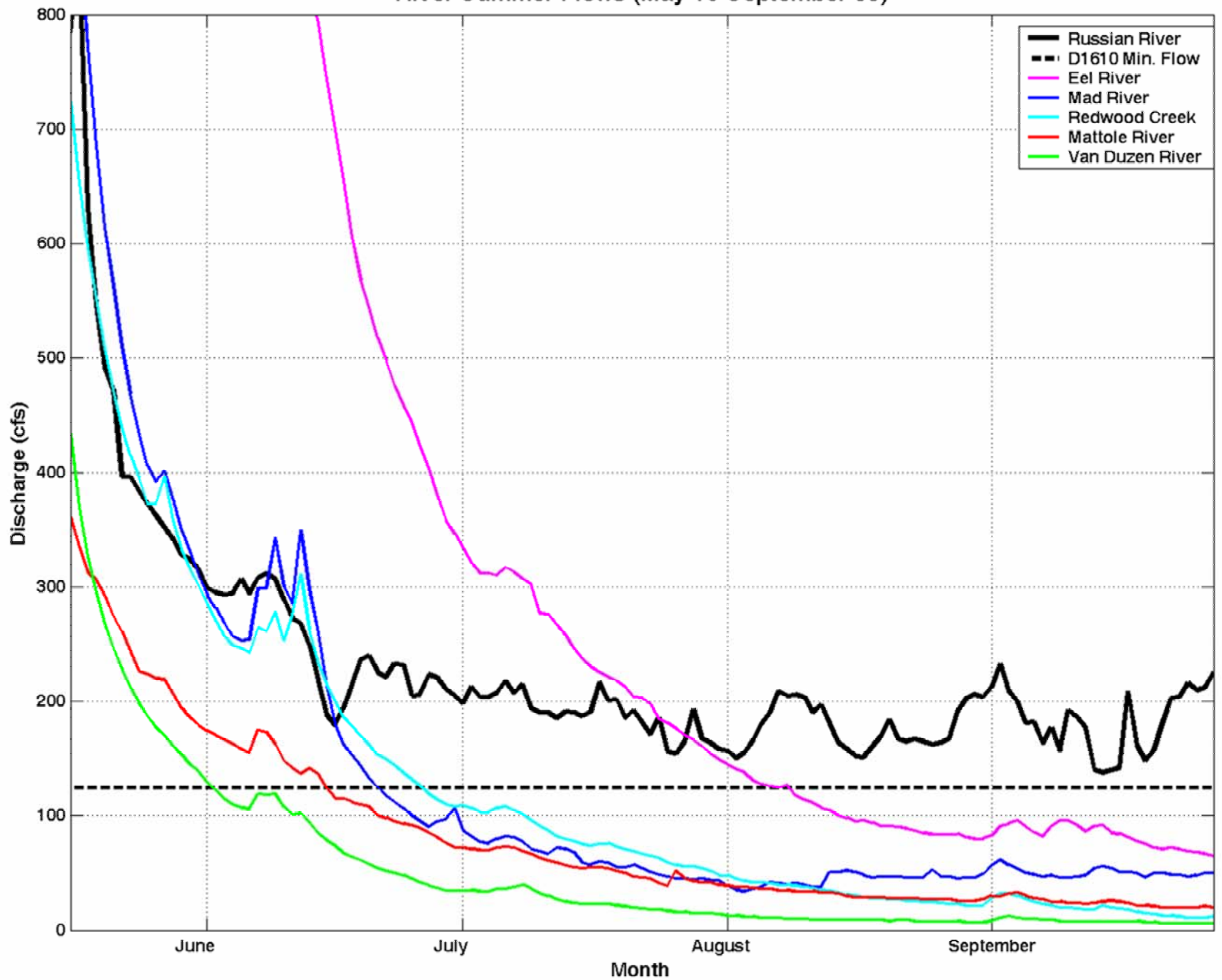
River Summer Flows (May 16-September 30)



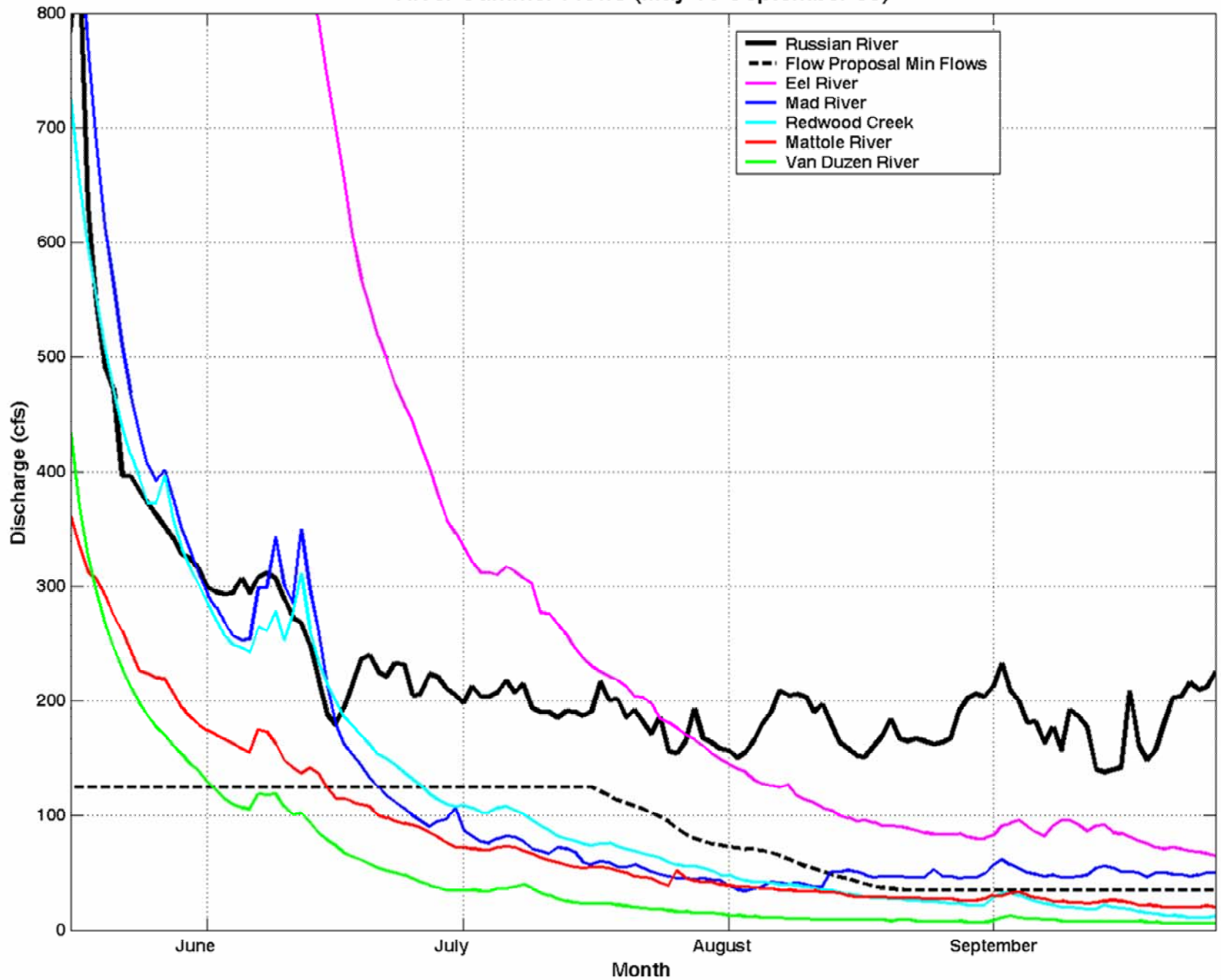
# Model Simulation – Lower River

- Summertime flows would be about:
  - June 160 cfs
  - July 75 cfs
  - Aug 60 cfs
  - Sept 70 cfs

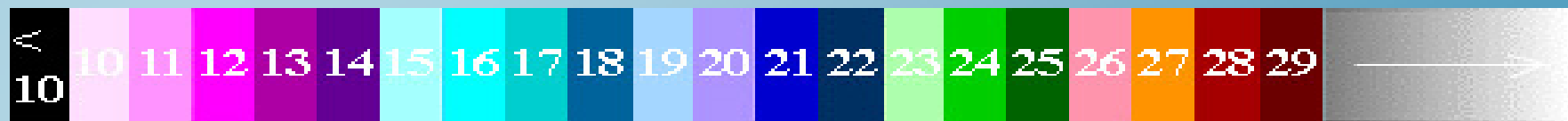
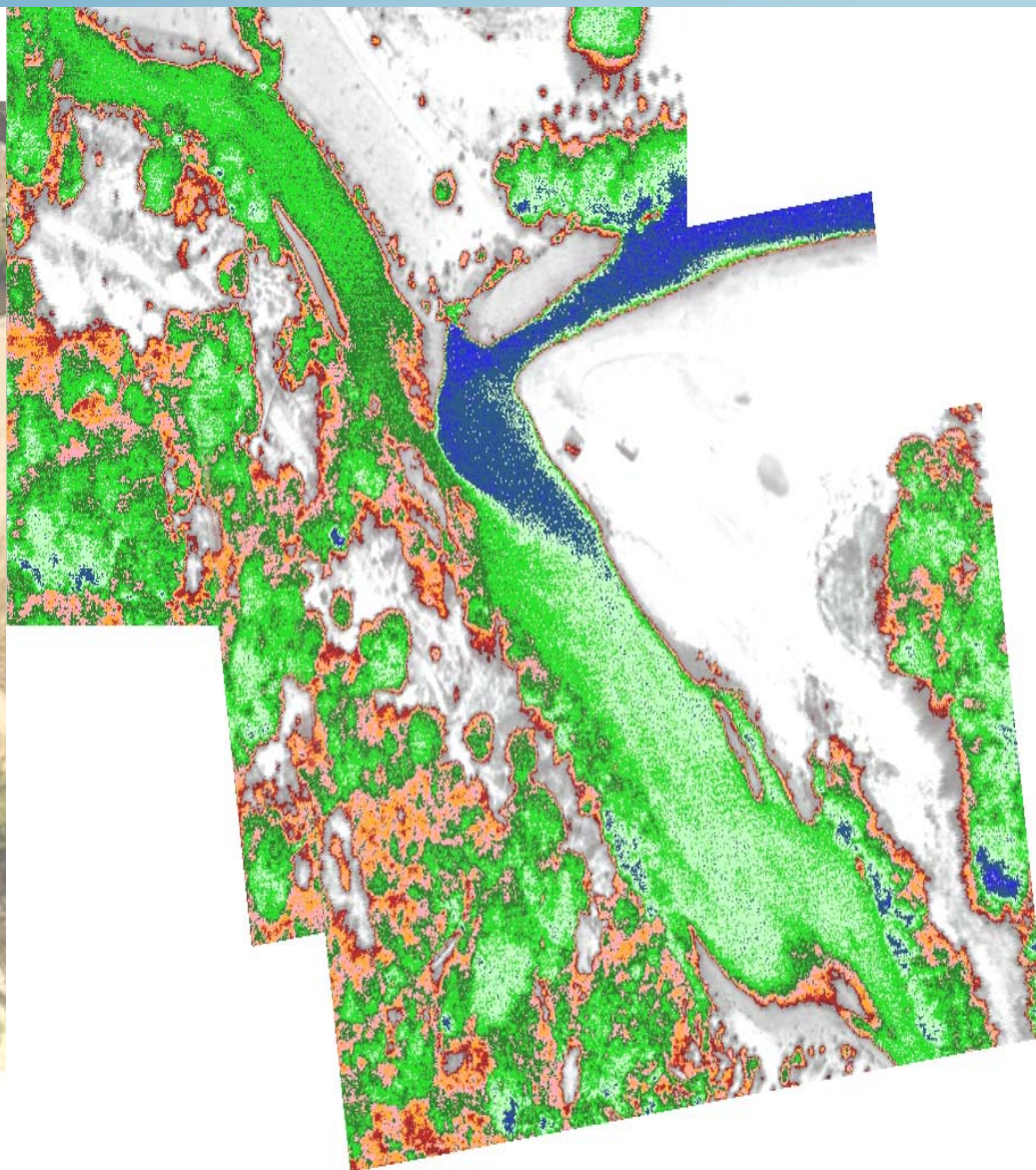
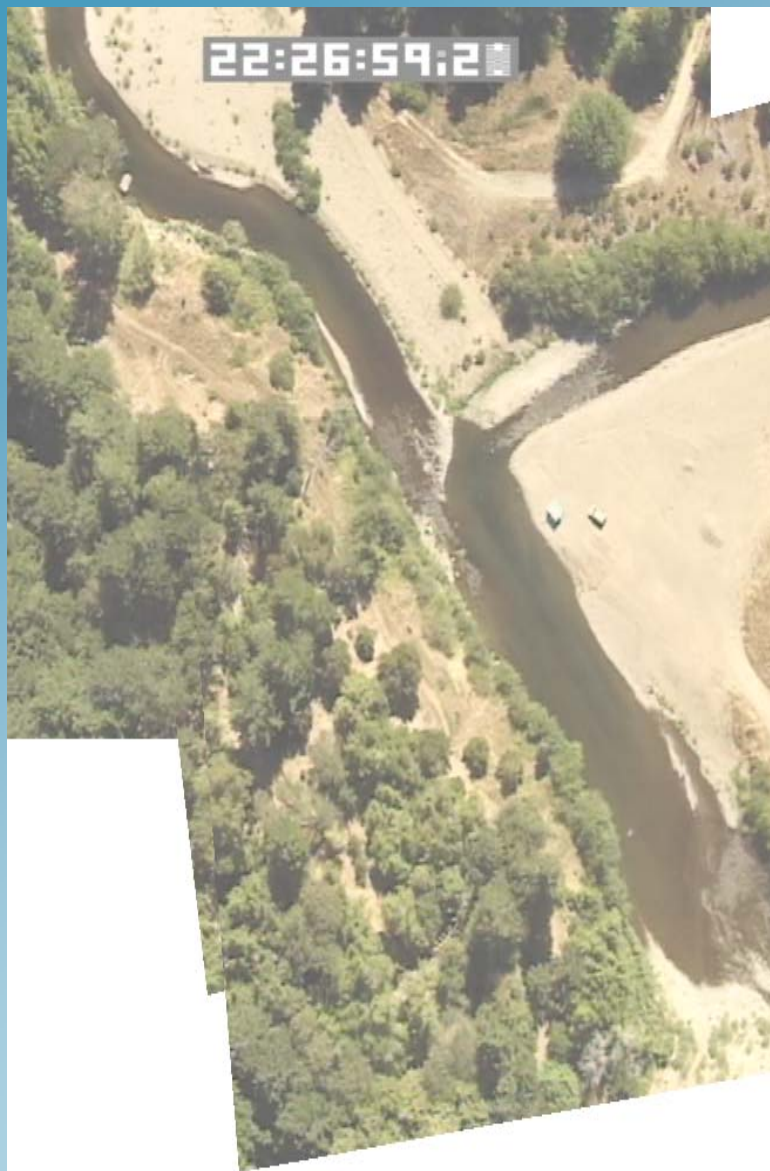
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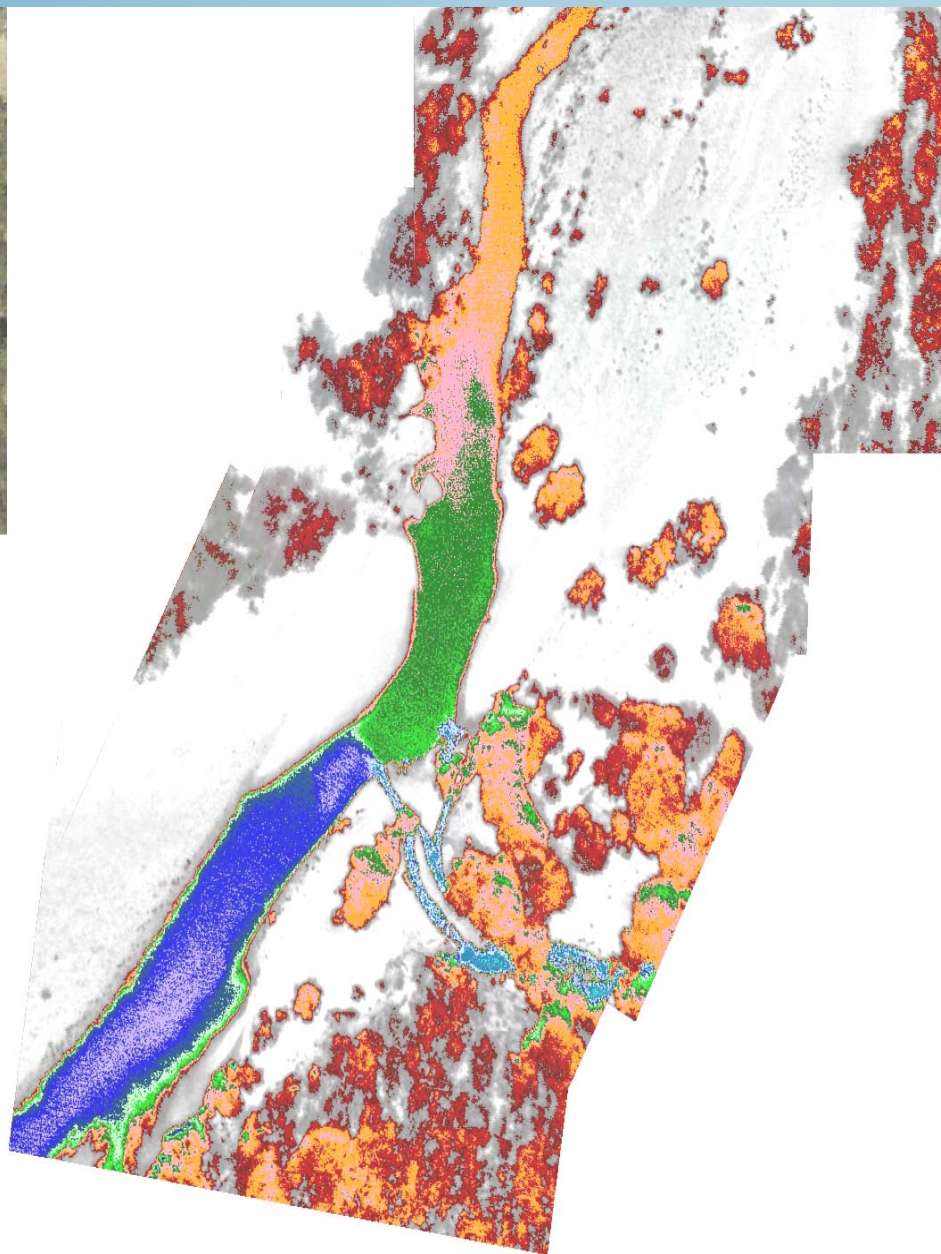
River Summer Flows (May 16-September 30)











# Benefits of Flow Proposal

Limiting Factor: summer rearing  
habitat for steelhead

## Russian River

- Maintain habitat values
- Cooler temperatures in late summer
- Cool water refuge habitat

# Benefits of Flow Proposal

Limiting Factor: summer rearing  
for steelhead and coho salmon

## Dry Creek

- Cool water temperatures
- Lower velocities
- More complexity

# Benefits of Flow Proposal

Limiting Factor: summer rearing for steelhead and coho salmon

## Summer Estuary rearing conditions

- more stable rearing conditions
- improved food availability
- freshwater conditions

# Estuary Studies Show:

- Well-managed lagoons are heavily used by salmonids
- Summertime breaching can negatively affect rearing conditions
- With sufficient inflow, lagoons “freshen” - excellent rearing habitat

# Benefits of Flow Proposal

Problem: Entry of adult Chinook salmon in August and September

- Better timing for entry for Chinook adults

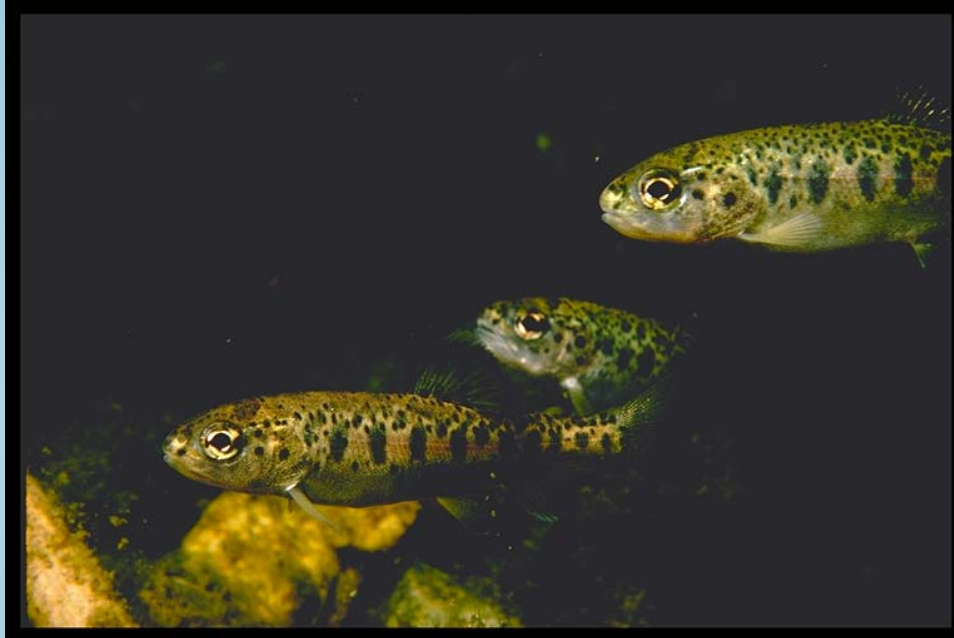
Problem: Breaching can “flush” rearing fish into seawater

- Reduced risk to juveniles



# Russian River Estuary

- Stable, freshwater conditions in the Estuary would address a limiting factor - summer rearing habitat



# Implementation of Flow Proposal

- BA finalized (April 2004)
- Final BO issued (Dec 2004)
- Final EIR/EIS (Dec 2007)
- State Water Resources Control Board Process (2007-2011)
- State Water Resources Control Board Decision (2011)



# Summary

